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**PURPURA IN INFECTIVE DIARRHŒA.**

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SYMPTOMATIC purpura in infective diarrhœa of infants has not attracted much attention. Diarrhœa is mentioned incidentally by John Thomson (4) among the cachectic conditions which may cause purpura. As two well-marked examples of extensive purpura in infants semi-comatose as the results of infective diarrhœa happened to come under observation on the same day, we analysed the notes of 100 cases of severe infective diarrhœa with reference to this point. The cases were sufficiently severe to be admitted to the wards of the Victoria Hospital for Children, but otherwise were unselected; about two thirds of them were seen during the past summer. This analysis was made before we had seen Voelcker's paper "On Purpura in Children," (5) in which he comes to much the same conclusions.

Of the 100 cases (fifty-six males with an average age of 8 months, and forty-four females with an average age of 7·36 months), sixty-seven (thirty-six males, average age 7 months, thirty-one females, average age 6·2 months) proved fatal, and thirty-three (twenty males, average age 9·4 months, thirteen females, average 10·2 months) recovered. Purpura occurred in eleven (six male, five female) cases, all of which were fatal. Of the sixty-seven cases 16·4 per cent. showed purpura. The average age of the eleven cases was  $8\frac{1}{3}$  months, the extremes being 1 month and 28 months. All but two cases (28 months and 12 months) were under 11 months of age; and, exclusive of the girl aged 28 months, the average age works out at 6·2 months. None of the purpuric cases showed œdema. Among

\* A paper read before the Section for the Study of Disease in Children of the Royal Society of Medicine on November the 24th, 1911.



the 100 cases there was one case with œdema of the hands and feet which recovered; and two fatal cases (without purpura) showed "septic" rashes.

*Site of the purpura.*—In one of the eleven cases the situation is not recorded. In eight the eruption occupied the skin of the abdomen, more especially of the lower part, and in four of these the thorax was also affected; in one of the latter there were hæmorrhages on the arms, legs, and head. In one instance the thorax alone was affected, and in another the head only was involved. It is an interesting question why the purpura occurs on the trunk and avoids the extremities where ordinary purpura is more commonly seen. Possibly the absence of the extravasation on the extremities is connected with the exhausted condition of the circulation in these patients, and an extremely low blood-pressure in the peripheral vessels. It is conceivable that with a higher blood-pressure the purpura would be universal. In addition, from the horizontal position of the infants the force of gravity does not favour purpura of the legs as it does in patients who are up. After this paper was read Dr. R. S. Trevor suggested to us that the distribution of the purpura on the lower part of the abdomen might be influenced by the presence and frequent changing of napkins.

Usually the hæmorrhages are small, but they may be so closely set as to make the skin of the abdomen almost uniformly purple when seen from a distance. In a case under the care of Dr. E. I. Spriggs, to whom we are much indebted for its use, there were large hæmorrhages two inches in length on the chest; from the heart's blood of this case Dr. H. R. Dean, of the Lister Institute, isolated *Bacillus enteritidis* Gaertner in pure culture. The average duration of the diarrhœal disease in the cases with purpura was forty-one days, the extremes being two days and eighty days, but in all except one case the duration was more than two weeks. The purpura was usually a late phenomenon and appeared on an average on the thirty-fourth day, that is, a week before death. It is therefore connected with cachexia rather than acute infection or toxæmia. Though usually seen shortly before death, in one instance six hours before, the purpura is not always terminal: in one patient the rash disappeared and the child improved, but the diarrhœa returned and proved fatal two weeks after the eruption had vanished. In another case there were three crops of purpura, seventeen, eight and two days before death respectively.

Special note was taken to see if transfusion or the administration of horse or other serum could have had any influence in causing the

purpura. But in most instances the appearance of the purpura preceded transfusion or the use of serums.

Our cases do not suggest any close relation between purpura and the œdema which sometimes occurs in children after gastro-enteritis (Fairbanks (2), Dewolf (1), Hume (3), and others). It would not be unreasonable to suppose that if intestinal toxæmia gives rise to œdema a more severe toxæmia would induce hæmorrhages, and that a case might first show œdema and later purpura as the toxæmia became progressively more severe. The suggestion that purpura is due to a hæmic infection is attractive, but we have little proof to offer, as bacteria were only found in the blood in one case—that mentioned above. In one case only was there evidence of infantile scurvy. Our notes do not justify any expression of opinion on the question whether or not renal insufficiency plays any part in the production of purpura.

*Prognosis.*—As judged by our eleven cases of purpura, all of which were fatal, the prognosis is extremely grave. Voelcker, however, says that it is by no means necessarily a fatal sign, and the events already described in two of our cases suggest that recovery might occur.\*

#### CONCLUSIONS.

- (1) Symptomatic purpura in infective diarrhœa mainly occurs on the abdomen and chest of infants under the age of one year.
- (2) It is usually a terminal phenomenon in prolonged cases.
- (3) The prognosis in these cases is extremely grave.

#### REFERENCES.

- (1) DEWOLF.—‘Arch. Pediat.,’ New York, 1902, xix, 895.
- (2) FAIRBANKS.—‘Amer. Journ. Med. Sc.,’ Phil., 1903, cxxvi, 443.
- (3) HUME.—‘Brit. Med. Journ.,’ 1911, ii, 478.
- (4) THOMSON, J.—‘Clinical Examination and Treatment of Sick Children,’ Edinburgh and London, 1908, p. 226.
- (5) VOELCKER.—‘Trans. Med. Soc. Lond.,’ 1905, xxvii, 33.

\* In a case which came under observation after this paper was written, recovery occurred after a single hæmorrhage, the size of half-a-crown, had appeared under the skin of the abdomen between the umbilicus and the pubes.



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